

ATTACHMENT J31

U.S. Army Fort Bliss Electrical Distribution System

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J.31 U.S. Army Fort Bliss Electrical Distribution System

J.31.1 U.S. Army Fort Bliss Overview

The U.S. Army Fort Bliss was established in November 1848 as the Post of El Paso. In March 1854, it was renamed Fort Bliss in honor of William Wallace Smith Bliss, a veteran of the Florida Seminole and Mexican Wars and later adjutant general of the Army's Western Division. Originally established to protect settlers from Indians and marauding bandits, it is one of the oldest posts in the United States Army. Although both infantry and cavalry soldiers could once be found on Fort Bliss, today the mission focus is on air defense artillery. As the center for air defense, Fort Bliss' partner organizations include:

- 11th Air Defense Artillery Brigade
- 3rd Armored Cavalry Regiment
- William Beaumont Army Medical Center
- U. S. Army Sergeants Major Academy
- "Capstone" school in the U.S. Army's Noncommissioned Officer Education System
- Joint Task Force Six
- German Air Force Command (United States/Canada)
- German Air Defense School

The U.S. Army Fort Bliss is located at the tip of West Texas on the borders of Texas and New Mexico. With 1.1 million acres, the Post is larger than the state of Rhode Island and can accommodate every weapon system in the Army. Although the main cantonment area is located in Texas, ranges extend into the state of New Mexico. Excellent ranges and immense training areas, coupled with America's third longest runway at Biggs Army airfield, make Fort Bliss a premier facility for training, mobilization, and deploying combat forces. Each year, many military training exercises occur at the Post, including the largest joint training exercise in the world, Roving Sands.

J.31.2 Electrical Distribution System Description

J31.2.1 Electrical Distribution System Fixed Equipment Inventory

The U.S. Army fort Bliss electric distribution system consists of all appurtenance physically connected to the distribution system from the point in which the distribution system enters the Base, and/or Government ownership currently, starts to the point of demarcation defined by the real estate instruments. Generally, the point of demarcation will be the building footprint. The system may include, but is not limited to, substations, transformers, underground and overhead circuits, utility poles, switches, vaults, and lighting fixtures. The Following description and inventory is included to provide the Offeror a general understanding of the size and configuration of the distribution system. The Offeror shall base the proposal on site inspections, information in the bidders library, other pertinent information, and to a lesser degree the following description. Under no circumstances shall the Contractor be entitles to any rate adjustments based on the accuracy of the following description and inventory.

J31.2.1.1 Description

Fort Bliss currently purchases its electrical power requirements from El Paso Electric (EPECo).Fort Bliss then redistributes the electrical power from the Installation's main and auxilliary substations with EPECo throughout the main cantonment area and facilities utility service areas via 397 circuit miles (approximate) of overhead and underground primary and secondary distribution lines. In addition to the main cantonment area, Fort Bliss has several off-post ranges that have electrical distribution systems and equipment. These include Site Monitor Station, McGregor Range, Oro Grande Range, and Dona Ana Range. These are remote stations for radar and missile sites and various training purposes. In addition, nearby to Fort Bliss, is the Beaumont Medical Center, which is a complex of the main hospital building, staff housing, and laboratory and other facilities to support the hospital activities. Also, there is Biggs Army Airfield, which is still active. The airfield is an integral part of the Installation and is supported by its own sub station which is fed from EPECo's Butterfield sub station.

The electrical power utility distribution system consists of:

- approximately 184 circuit miles of overhead primary distribution lines
- approximately 67 circuit miles of underground primary distribution lines
- approximately 63 circuit miles of overhead/underground secondary lines
- approximately 83 circuit miles of overhead/underground lighting circuits
- approximately 155 power circuit breakers/switches/reclosers

The electrical distribution system is extensive, consisting primarily of overhead circuitry. There is one large power substation on the main cantonment area that has divided ownership. The high side of the substation is fed by the El Paso Electric Company

(EPECo) at 115 kV; the 115/13.8 kV transformer and protection equipment are owned by EPECo. The Army owns the low side of the substation, which consists of steel framework, bus work, low side circuit breakers, metering equipment, regulators, and stand-by generators. The low side voltage from the main substation has different levels. One is 13.2 kv wye, one is 13.8 kv delta, and another is 4.16 kv wye. The ten circuit breakers and associated relaying equipment are approximately five years old. The remaining equipment is approximately 40-45 years old.

The primary method of distribution is by overhead feeders constructed on single wood pole structures with wood cross arms. The electrical system is quite old. Many of the distribution loops were constructed originally in World War II and have since been gradually modified. The pole dates that were obtained ranged from the sixties to the mid-eighties; however, some of the poles were so old that the brand marks were not legible. The overhead conductor sizes range from #2 copper to 336 ACSR. The overall condition of the system appears to be poor-to-fair.

Ft. Bliss has very limited manpower with which to perform maintenance. At this time, they have four high-voltage technicians and very little equipment of their own. The Installation leases the necessary pieces of equipment (bucket trucks, etc.) to do their work. Maintenance on the system is performed on a failure or break-down basis. Currently, Ft. Bliss is not staffed to perform comprehensive preventive maintenance.

In addition to the main cantonment, Fort Bliss has several off-post ranges that have electrical distribution systems and equipment. These include Site Monitor Station, McGregor Range, Oro Grande Range, and Dona Ana Range. The remote stations are for radar and missile sites and various training purposes. In addition, nearby to Fort Bliss, is the Beaumont Medical Center, which is a complex of the main hospital building, staff housing, laboratory, and other facilities to support the hospital activities. Beaumont Hospital is fed from a new meter station located south of the main building on Piedras Street. Also, there is Biggs Army Airfield, which is still active. The airfield is an integral part of the Installation and is supported by its own sub station which is fed by EPECo's Butterfield sub station. All of these areas are also the responsibility of the Fort Bliss Directorate of Public Works.

In addition to the overhead feeders that serve the area, there are a number of underground circuits that feed selected headquarters areas, some housing areas, and range operations areas. The soil condition at Fort Bliss is loose desert rock. Therefore, concrete-encased duct banks are often required for underground circuits. The underground feeders are about 25 years old.

The drawings that were provided by the DPW personnel were plan layout type drawings (no electrical one lines, etc.) They appear to be fairly accurate but several transformer sizes and conductor sizes were not listed and had to be estimated.

Since this inventory was performed, a number of buildings have been built (barracks, dining facilities, etc.) and a number of old buildings have been demolished. The new/planned construction of barracks complexes, dining facilities, and residential housing will require improvements or extensions of existing power distribution facilities. The total of these improvements will raise the overall Fair Value by an estimated increment of \$450,000 when completed. The system electrical drawings furnished do not reflect these changes. Future drawing revisions will be necessary.

The electrical distribution system at Fort Bliss utilizes an old construction practice of installing pole type transformers in fenced ground level or vaulted configurations with exposed bushings, transformer leads and bus works. This type of installation violates current safety standards and practices relating to clearances to live parts (NESC, Sec. 124) and will need to be replaced with facilities in compliance with Code requirements. The combination of site visits and drawing reviews identified a total of 55 transformer bank sites that may require replacement or extensive modification to conform to Code safety requirements. The rectification of these 55 sites will cost an estimated \$2.2 million. This cost item will be a deduction from the Estimated Fair Value until it is resolved. In 1999, a complete survey of all transformer poles was conducted to ensure the safety of ground wires. The survey cost in excess of \$500K.

J31.2.1.2 Inventory

Table 1 provides a general listing of the major electrical system fixed assets for the U.S. Army Fort Bliss electrical distribution system included in the purchase. The system will be sold in an “as is, where is” condition without any warrant, representation, or obligation on the part of the Government to make any alterations, repairs, or improvements. All ancillary equipment attached to and necessary for operating the system, though not specifically mentioned herein, is considered part of the purchased utility.

TABLE 1
 Fixed Inventory
 Electrical Distribution System Inventory U.S. Army Fort Bliss

			APPROX. CONSTRUCTION YEAR	
ITEM		QTY.	UNIT	
Overhead Lines				
3 Ph. - Open Wire	Large	24.51	mi	1971
3 Ph. - Open Wire	Small	122.81	mi	1971
1 Ph. - Open Wire		36.46	mi	1971

GOAB Switch / Recloser / Oil Sw.	115 ea	1971
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Secondary	45.95 mi	1973
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Underground Lines

3 Ph. - Large	2.41 mi	1983
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3 Ph. - Small	48.57 mi	1983
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1 Ph.	16.30 mi	1983
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Duct Bank	29.95 mi.	1983
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Manholes	250 ea.	1974
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Sectionalizing Switches	18 ea	1983
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Secondary	16.82 mi	1983
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Transformers - Pole Type

15 kVA & smaller	417 ea	1964
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25 kVA	631 ea	1964
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37.5 kVA	411 ea	1964
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50 kVA	518 ea	1964
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75 kVA	260 ea	1964
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100 kVA	200 ea	1964
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167 kVA	64 ea	1964
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250 kVA	6 ea	1964
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333 kVA	3 ea	1964
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500 kVA	6 ea	1964
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Transformers -

Pad Mount

1P - 15 kVA & smaller	72 ea	1974
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1P - 25 kVA	29 ea	1974
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1P - 37.5 kVA	5 ea	1974
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1P - 50 kVA	18 ea	1974
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1P - 75 kVA	36 ea	1974
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1P - 100 kVA	61 ea	1974
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1P - 167 kVA	2 ea	1974
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3P - 112.5 kVA & smaller	34 ea	1974
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3P - 150 kVA	15 ea	1974
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3P - 225 kVA	14	ea	1974
3P - 300 kVA	20	ea	1974
3P - 500 kVA	20	ea	1974
3P - 750 kVA	8	ea	1974
3P - 1000 kVA	10	ea	1974
3P - 1500 kVA	2	ea	1974
3P - 2000 kVA	2	ea	1974
3P - 2500 kVA	1	ea	1974
3P - 3750 kVA	1	ea	1974

Street Lights

Fixtures	3509	ea	1983
Poles	2385	ea	1983
Lighting Circuits	83.55	mi	1983

Services

3 Phase	1028	ea	1979
1 Phase	3183	ea	1979

Substations

Structure / Buswork	1	lot	1967
Circuit Breakers / Switchers	22	ea	1996
Regulator	14	ea	1996
Miscellaneous (20%)	1	lot	1996

Table 2 Acronyms

KVA =	Nominal Kilovolt Amperes
MVA =	Megavolt Amperes
mi =	miles
ea =	each
Ph =	Phase

J31.2.1.3 Estimated Replacement Cost New (RCN)

For completing Schedule B-1, Sub-CLIN 0003AC, Normal Renewals and Replacements, the Government has estimated the RCN of the U.S. Army Fort Bliss electrical distribution system to be \$47,803,807 dollars. This value shall be used by the Offeror IAW Clause B.6.3.3.

J31.2.2 Electrical Distribution System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and Table 3 lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2
Spare Parts
Electrical Distribution System U.S. Army Fort Bliss

Qty	Item	Make/Model	Description	Remarks
To be identified in technical library	Same	Same	Same	

TABLE 3
Specialized Equipment and Vehicles
Electrical Distribution System U.S. Army Fort Bliss

Description	Qty	Location	Maker
None Identified			

J31.2.3 Electrical Distribution System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4

Manuals, Drawings, and Records
Electrical Distribution System U.S. Army Fort Bliss

Qty	Item	Description	Remarks
To be identified in technical library	Same	Same	Same

J31.3 Specific Service Requirements

None Identified.

J31.4 Current Service Arrangement

Fort Bliss currently purchases its electrical power requirements from El Paso Electric (EPECo) under the Utility's Rate 31, Military Reservations, and Rate 27, Interruptable Power. The first 16 megawatts is delivered firm, while consumption over 16 megawatts is interruptable.

J31.5 Secondary Metering

The Installation presently has secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor shall assume full ownership and responsibility for existing and future secondary meters IAW Clause C.3.

J31.5.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW H.5 and J31.5 below.

TABLE 5
Existing Secondary Meters
Electrical Distribution System U.S. Army Fort Bliss

Meter Location	Meter Description
150+ meters to be provided during site visit	150+ meters to be provided during site visit

J31.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 6**. New secondary meters shall be installed IAW Clause C.17, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Clauses C.3, H.5, and J31.5 below.

TABLE 6
New Secondary Meters
Electrical Distribution System U.S. Army Fort Bliss

Meter Location	Meter Description
None Identified	

J31.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to:

Name:

Address:

Phone number:

2. Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall include the following information for Scheduled and Unscheduled outages:

Scheduled: Requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

Unscheduled: Include date, time and duration, facilities affected, response time after notification, completion times, feedback provided at time of outage, specific item failure, probability of future failure, long term fix, and emergency digging clearance number.

Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to:

Name:

Address:

Phone number:

3. **Meter Reading Report.** The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to:

Name:

Address:

Phone number:

4. **System Efficiency Report.** If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to:

Name:

Address:

Phone number:

J31.7 Energy Savings Projects

IAW C.3, Utility Service Requirement, the following projects have been implemented by the Government for managing and monitoring I&I:

- Utility Monitoring & Control System on 63 buildings
- Postwide lighting retrofit
- Automated meter reading system (ITRON)

J31.8 Service Area

IAW Clause C.4, Service Area, the service area is defined as all areas within the U.S. Army Fort Bliss boundaries to include the main cantonment area , Site Monitor Station, McGregor Range, Oro Grande Range, Dona Ana Range, and Biggs Army Airfield.

J31.9 Off-Installation Sites

Nearby to Fort Bliss, is the Beaumont Medical Center, which is a complex of the main hospital building, staff housing, laboratory, and other facilities that support the hospital

activities. The requirement for electric service to the Beaumont Medical Center is part of and associated with this scope.

J31.10 Specific Transition Requirements

IAW Clause C.17, Transition Plan, **Table 7** lists service connections and disconnections required upon transfer, and **Table 8** lists the improvement projects required upon transfer of the U.S. Army Fort Bliss electrical distribution system.

TABLE 7
Service Connections and Disconnections
Electrical Distribution System U.S. Army Fort Bliss

Location	Description
None Identified	

TABLE 8
System Improvement Projects

Project Location	Project Description
Postwide	Transformer safety upgrades

J31.11 Government Recognized System Deficiencies

System Deficiencies
None Identified